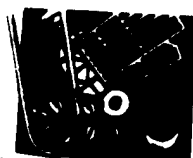


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HIGH-TECH VIGILANCE

Satellites, seismic sensors, and electronic eavesdropping monitor today's Soviet weapons. But how well? And what about tomorrow's?

BY R. JEFFREY SMITH

IN FEBRUARY 1983, a new intercontinental ballistic missile was launched from Plesetsk, an enormous space complex in the northwestern region of the Soviet Union. Within seconds, a panoply of sensors operated by the U.S. intelligence community swung into action. Radars, located along the periphery of the Soviet Union and on several remote islands in the Pacific, tracked the flight of the missile and monitored its separation into three stages. Satellites positioned overhead repeatedly snapped its picture. And in conjunction with half a dozen listening posts on the ground, the satellites also eavesdropped on a series of electronic signals broadcast by the missile to Soviet engineers.

All of this was standard practice for America's intelligence-gathering network, but what was seen that day was not standard by any means. According to U.S. intelligence experts, the missile seemed to violate a provision of the SALT II arms treaty. Although the charge has been denied by the Soviets, it figured prominently in President Reagan's decision last June to proceed with the development of a simi-

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lar missile, known as the Midgetman, which will also violate the SALT II treaty.

For more than 30 years, the United States has used its monitoring technologies to scout for ominous developments in the international arena. Of particular interest, of course, have been the activities of America's most powerful adversary. In the early days of this era, the Air Force attached bulky cameras to balloons and released them over Western Europe in hopes that they would be carried by trade winds over the Soviet landmass and then retrieved intact over the Pacific. Now, an array of expensive satellites, impressive radars, listening devices, spy planes, and seismic sensors constitute, in the jargon of arms negotiators, America's "national technical means"—the means by which compliance with arms treaties can be unilaterally verified.

If it's true that what you know about can't hurt you, then the major investments made by both the Soviets and the United States in monitoring technologies make sense. Compared with the big-ticket weapons systems each side develops on the theory that they will enhance national security, the technologies that tell us what the other side is doing are a bargain. Nations that know what their enemies are doing are less likely to increase world tensions through actions born of fear. And nations that know